

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Consumer Protection & Safety Division
Rail Engineering Safety Branch
Rail Transit Safety Section

RESOLUTION ST-56
July 17, 2002

RESOLUTION

RESOLUTION GRANTING SAN FRANCISCO MUNICIPAL RAILWAY (MUNI) AUTHORITY TO DEVIATE FROM CERTAIN SIDE CLEARANCE REQUIREMENTS OF GENERAL ORDER 143-B, SECTION 9.06, C. (1) FOR THE CONSTRUCTION AND OPERATION OF ITS PROPOSED THIRD STREET LIGHT RAIL LINE.

Summary

This resolution grants San Francisco Municipal Railway's (Muni) request for authority to deviate from the side clearance requirements of General Order 143-B, Section 9.06, c. (1) in the construction and operation of its proposed Third Street light rail line. It specifically allows for reduced side clearances between light rail vehicles (LRV) and/or historic streetcars (HSC) operating on parallel tracks used exclusively for light rail transit operations.

The Project

Phase One of Muni's Third Street Light Rail Project will extend light rail train service 5.4 miles from the existing line near the Caltrain Station at Fourth and King Streets, southerly along the Third Street Corridor, to the San Francisco City and County line near Sunnydale Avenue. The project consists of seven separate but integrated project segments and additional sub-projects. Phase One is currently scheduled to begin service in 2005. Phase Two, The New Central Subway, is still in its planning and study stages and is not addressed in this Resolution.

The Commission's staff (staff) has been involved in the safety oversight of Phase One since 1998, during Muni's conceptual engineering, preliminary engineering and final design processes. That safety oversight activity has focused on compliance with the Commission's safety requirements and working with Muni to identify and resolve safety hazards. In this instance, staff has been working with Muni on compliance with side clearances specified in General Order 143-B.

Background

Title 49 Code of Federal Regulations, Part 659 Rail Fixed Guideway Systems; State Safety Oversight Rule required Muni to implement its System Safety Program Plan on January 1, 1997, under the safety oversight of the Commission. Before that time, Muni, as a municipal utility, was exempt from the Commission's rail transit safety jurisdiction.

By letter dated May 7, 2001, Muni requested authority to deviate from the requirements of General Order 143-B Section 9.06 c. (1) in the construction of its Third Street light rail line. In its request, Muni notes that the right of way available for the proposed light rail line is constrained by the adjacent roadways, sidewalks and private property. Those constraints prevent inclusion of the minimum side clearances prescribed by the Commission. Providing those required minimum side clearances could only be accomplished by further reducing the widths of the motor vehicle traffic lanes, reducing the number of lanes and/or the width of the sidewalks along the Third Street Corridor. Employing any or all of those actions would result in other conditions reducing the safety and functionality of motor vehicle and pedestrian use of the Third Street Corridor. According to Muni representatives, none of the other options is acceptable to the City and County of San Francisco's other departments.

General Order 143-B Section 9.06 c. (1) establishes a minimum side clearance of thirty (30) inches between LRVs and/or HSCs on parallel tracks in yards and along shop aisles and at other locations, including emergency walkways, where passengers, employees, or other persons are permitted or required to be while trains are in motion

At locations and in areas where passengers, employees and other persons are normally prohibited while trains are in motion, General Order 143-B, Section

9.06, c. (2) establishes a minimum side clearance of eighteen (18) inches between LRVs and/or HSCs on parallel tracks.

The tracks and right of way, in the areas of concern, would be located in the street median and bordered with curbs adjacent to the motor vehicle traffic lanes. General Order 143-B describes this type of light rail track alignment and the associated operation of light rail trains as a semi-exclusive right of way. As such, it provides a degree of physical and visual separation from the adjacent motor vehicle traffic lanes.

Muni's Construction Division has analyzed the clearances available between the dynamic envelopes of trains on adjacent tracks, along the proposed right of way. The Construction Division has determined that those minimum clearances would vary from eighteen (18) inches to twenty-nine (29) inches.

As a comparison with the clearances proposed for the Third Street project, Muni cites the existing N-Line on Judah Street, between 9th and 19th Avenues. That section of the N-Line is a semi-exclusive, double-track, street median alignment that provides only 14 inches of clearance between the dynamic envelopes of light rail vehicles traveling on adjacent parallel tracks. Muni advises that this section of the N-Line has been in operation for over 20 years and there have been no accidents involving pedestrians that were due to the limited side-clearances between light rail vehicles being operated on the adjacent tracks. Muni also points out that, unlike the Third Street Project, none of the intersections between 9th Avenue and 19th Avenue have the additional protection provided by pedestrian traffic signals.

Muni Hazard Mitigation Proposals

Muni proposes to provide additional specific design elements as safety mitigations for the requested reduced side clearances. Those elements include:

1. All pedestrian crosswalks, crossing the street and tracks, would include pedestrian signals activated by push buttons. In the effort to address the safety of all pedestrians, including those with limited or impaired mobility, the crossing times would be designed to allow pedestrians to travel as slowly as 2.5 feet per second. Muni states that this would allow pedestrians to cross the entire street in one pedestrian crossing cycle.

2. To guide pedestrians across the street and tracks, the pedestrian crosswalk's surface would be distinctly colored and striped from sidewalk to sidewalk. The pedestrian crosswalks that are adjacent to stations and provide access to the station platforms would also have that designated walkway's surface, from the crosswalk to the station platform entry ramp, similarly striped and colored. In both instances, the track area and its right of way on either side would also maintain a distinct surface color treatment through the pedestrian crosswalks.
3. Between crossings, the right of way is located in the street median. Muni intends this to be an area where passengers, employees and other persons are normally prohibited while trains are in motion. That semi-exclusive right of way would have broad black and red stripes applied to its smooth surface to discourage pedestrians from entering the area.

Staff Response

Staff supports these Muni proposals to mitigate hazards associated with the operation of the Third Street line. However, staff has additional concerns and proposes additional hazard mitigations for this project. Muni has reviewed and is in agreement with these additional hazard mitigations proposed by staff.

Those concerns include pedestrians with higher levels of impaired mobility or pedestrians who enter the crosswalk late in the traffic cycle would be unable to reach the opposite side of the street, before the crossing cycle ends. Additionally, pedestrians using the crosswalks to cross the street might easily perceive the street median as a place of safe refuge from motor vehicle traffic. Muni's broad red and black striping of the smooth, paved street median right of way, between crossings, might not necessarily be perceived by pedestrians as an area that they should not enter and is not necessarily a safe place while trains are in operation.

As a result of its concerns, staff believes and Muni concurs that additional steps, beyond those originally proposed by Muni, should be taken. Those additional hazard mitigations are:

1. Muni should provide appropriate signage at the street median semi-exclusive right of way, adjacent to the pedestrian crosswalks, prohibiting pedestrians from entering that area.

2. Muni should maintain and enforce its current operating Rule 4.22.2 contained in the San Francisco Municipal Railway Rules and Instructions Handbook, revised July 2000, which requires that “Operators must be prepared to stop short of any person, object, or obstruction within range of their vision.”
3. Muni should adopt and enforce a rule, which requires that, “If two opposing trains are approaching a person, who is on the right of way where there is not sufficient room to safely remain while the trains pass, both trains shall stop to allow the person to reach a safe place.”

Discussion

The General Order 143-B, Section 9.06, c. (1) minimum side clearance requirement of thirty (30) inches between LRVs and/or HSCs on parallel tracks would apply to each pedestrian crosswalk on the Third Street line. Muni is seeking authority to deviate from this requirement because physical constraints of the Third Street right of way limit the side clearances available to as little as eighteen (18) inches.

To address the hazards associated with the reduced side clearance, Muni is proposing push button activated, signaled pedestrian crosswalks at each intersection along the line. Muni also plans to provide pedestrians time to cross the street and tracks at the rate of 2.5 feet per second. In addition, Muni is proposing a distinctively colored surface and distinctive striping of the crosswalks and special color treatment of the right of way surface to help guide pedestrians safely across the street and tracks.

Staff is in agreement with and supports these proposed actions.

The General Order 143-B, Section 9.06, c. (2) requirement for a minimum side clearance of eighteen (18) inches between LRVs and/or HSCs on parallel tracks would apply to the semi-exclusive street median sections, between crossings, of the Third Street line. Passengers, employees and other persons are normally prohibited from being in this area while trains are in motion.

Muni is proposing a broad, black and red striping treatment of the smooth paved surface on the street median right of way to discourage pedestrians from entering those areas.

Staff is in agreement and supports Muni's proposal. Staff also believes that Muni should provide appropriate signage at the street median right of way, adjacent to the pedestrian crosswalks that prohibit pedestrians from entering the area. Muni should maintain and enforce its current operating Rule 4.22.2 contained in the San Francisco Municipal Railway Rules and Instructions Handbook, revised July 2000. That rule requires that train "Operators must be prepared to stop short of any person, object, or obstruction within range of their vision." Staff also advised that Muni should adopt and enforce a rule, which requires that, "If two opposing trains are approaching a person who is on the right of way, where there is not sufficient room to safely remain while the trains pass, both trains shall stop to allow the person to reach a safe place." Muni agrees with these proposals.

Comments

This is an uncontested matter in which the resolution grants the authority requested. Pursuant to Public Utilities Code Section 311(g)(2), the otherwise applicable 30-day period for public review and comment is being waived.

Findings

1. By letter dated May 7, 2001, Muni requested authority to deviate from the requirements of General Order 143-B, Section 9.06, c. (1) in the construction and operation of its proposed Third Street light rail line.
2. On January 1, 1997, Title 49 Code of Federal Regulations, Part 659 Rail Fixed Guideway Systems; State Safety Oversight required Muni to implement its System Safety Program Plan under the safety oversight of the Commission.
3. Prior to coming under the Commission's safety jurisdiction, Muni designed and constructed a semi-exclusive, double-track, street median alignment on the N-Line in Judah Street, between 9th and 19th Avenues. As a comparison, Muni notes that section of the N-Line provides only 14 inches of clearance between the dynamic envelopes of light rail vehicles traveling on adjacent parallel tracks. Muni advises that there have been no accidents involving pedestrians that were due to the limited side-clearances between light rail vehicles being operated on that section of the N-Line.

4. General Order 143-B, Section 9.06, c. (1) establishes a minimum side clearance of thirty (30) inches between LRVs and/or HSCs on parallel tracks in yards and along shop aisles and at other locations, including emergency walkways, where passengers, employees, or other persons are permitted or required to be while trains are in motion.
5. At locations and in areas where passengers, employees and other persons are normally prohibited while trains are in motion, General Order 143-B, Section 9.06, c. (2) establishes a minimum side clearance of eighteen (18) inches between LRVs and/or HSCs on parallel tracks.
6. Muni's Construction Division analyzed the clearances available between the dynamic envelopes of LRVs and/or HSCs on adjacent tracks, along the proposed Third Street line's right of way and has determined that the clearances between such trains would vary from eighteen (18) inches to twenty-nine (29) inches.
7. As further hazard mitigations, Muni would provide pedestrian signals activated by push buttons at all intersections along the Third Street light rail line. Pedestrian crossing signal times would be designed to allow pedestrians to travel from sidewalk to sidewalk across the streets and tracks, traveling as slowly as 2.5 feet per second. Pedestrian crosswalks would be distinctively colored and striped.
8. The street median right of way is intended to be an area where passengers, employees and other persons are normally prohibited while trains are in motion. To discourage pedestrians from entering that area of the right of way, between crossings, it would have broad black and red stripes applied to its surface.
9. Staff recommends and Muni agrees that in addition to Muni's proposed safety mitigations:
 - A. Muni should provide appropriate signage at pedestrian crosswalks, adjacent to the street median semi-exclusive right of way, prohibiting pedestrians from entering that area.

- B. Muni should maintain and enforce its current operating Rule 4.22.2 contained in the San Francisco Municipal Railway Rules and Instructions Handbook, revised July 2000, which requires that “Operators must be prepared to stop short of any person, object, or obstruction within range of their vision.”
- C. Muni should adopt and enforce a rule, which requires that, “If two opposing trains are approaching a person, who is on the right of way where there is not sufficient room to safely remain while the trains pass, both trains shall stop to allow the person to reach a safe place.”
- D. Staff and Muni agree that the requested authority to deviate from the side clearance requirements of General Order 143-B, Section 9.06, c. (1) should provide for safe light rail train operation on the proposed Third Street line subject to the additional hazard mitigations in the preceding findings.

Therefore, IT IS ORDERED that:

San Francisco Municipal Railway’s request for authority to deviate from the side clearance requirements of General Order 143-B, Section 9.06, c. (1) for the construction and operation of its proposed Third Street light rail line is granted subject to the following conditions.

San Francisco Municipal Railway shall use sound safety design, construction and operating practices in accordance with its System Safety Program Plan to design, construct and operate the Third Street light rail line and shall:

1. Provide pedestrian crosswalks with pedestrian signals activated by push buttons and pedestrian crossing times that allow pedestrians to travel as slowly as 2.5 feet per second and cross the entire street in one traffic cycle.
2. Provide pedestrian crosswalks, sidewalk to sidewalk, and adjacent station access walks with appropriately colored and striped pavement surfaces to safely guide pedestrians across the street and tracks.
3. Provide for side clearances that extend at least 18 inches laterally between the dynamic envelopes of LRVs and/or HSCs along the entire Third Street line.

4. Provide appropriate signage at pedestrian crosswalks, adjacent to the street median semi-exclusive right of way, prohibiting pedestrians from entering that area.
5. Maintain and enforce its current operating Rule 4.22.2 contained in the San Francisco Municipal Railway Rules and Instructions Handbook, revised July 2000, which requires that “Operators must be prepared to stop short of any person, object, or obstruction within range of their vision.”
6. Adopt and enforce an operating rule, which requires that, “If two opposing trains are approaching a person, who is on the right of way where there is not sufficient room to safely remain while the trains pass, both trains shall stop to allow the person to reach a safe place.”

Authority to deviate from the side clearance requirements of General Order 143-B, Section 9.06, c. (1) is limited to the construction and operation of the San Francisco Municipal Railway’s Third Street light rail line in Phase One of the Third Street Light Rail Extension Project.

This resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed, and adopted by the Commission at its regularly scheduled meeting on _____. The following Commissioners voted favorably thereon:

WESLEY M. FRANKLIN
Executive Director